RECORD OF DECISION
BUTLER MINE TUNNEL SITE

DECLARATION

SITE NAME AND LOCATION

Butler Mine Tunnel Site
City of Pittston
Luzerne County, Pennsylvania

STATEMENT OF BASIS AND PURPOSE

This decision document presents the remedial action for the Butler Mine Tunnel Site ("Site") in the City of Pittston, Pennsylvania. The remedial action was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA"), as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA"), 42 U.S.C. §§ 9601 et seq.; and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300. This decision document explains the factual and legal basis for selecting the remedy for this Site. The information supporting this remedial action decision is contained in the administrative record for this Site.

The Commonwealth of Pennsylvania concurs with the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Record of Decision ("ROD"), may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

This remedy addresses the possible future releases of hazardous substances from the Butler Tunnel. There were two prior releases of hazardous substances from the Site, one in 1979 and another in 1985. The remedy includes institutional controls and preparations for a remedial response to address the threat posed by the conditions at the Site. The remedy uses an Administrative Center to a) monitor rainfall, b) monitor flow rate at the Tunnel discharge location, c) measure water levels in monitoring boreholes and d) collect water samples for chemical analysis to attempt to predict when a discharge of hazardous substances may occur. The Administrative Center would be responsible for

notifying the U.S. Environmental Protection Agency ("EPA") and the Pennsylvania Department of Environmental Protection ("PADEP") when a potential for a flushout exists and when a flushout occurs. A flushout is defined as a sudden discharge of oil contaminated with hazardous substances from the mine workings into the Susquehanna River.

This remedy also includes preparation for future remedial response by constructing access roads and anchors along the river's edge and pre-purchasing containment and absorbent booms necessary for any such remedial response. These materials will be stored near the site to allow for the quickest possible response. The remedy includes design and implementation of two future response actions to cleanup future discharges. Response personnel would use the absorbent booms and anchor them along the river's edge to collect any oil discharge containing hazardous substances.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action and is cost effective.

This remedy prepares for the potential release of contaminants into the Susquehanna River. However, because removal and treatment of the hazardous substances which pose a threat at the site was not found to be practicable, this remedy does not satisfy the statutory preference for treatment as a principal element. No distinct pool or pocket of the contaminated oil wastes was found that could be pumped out and removed. The oil that is present has adhered to the rocks and gravel located in the collapsed mine workings beneath the ground surface.

Because this remedy will result in hazardous substances remaining onsite above health-based levels, a review under Section 121(c) of CERCLA, 42 U.S.C. §9621(c) will be conducted within five years after the initiation of the remedy to ensure that the selected remedy continues to provide adequate protection of human health and the environment.

Thomas C. Voltaggio, Director
Hazardous Waste Management Division

7/15/96
Date

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RECORD OF DECISION
BUTLER MINE TUNNEL SITE

DECISION SUMMARY

I. SITE NAME, LOCATION AND DESCRIPTION

SITE DESCRIPTION

The Butler Mine Tunnel Site ("Site") is located in Luzerne County, in northeastern Pennsylvania. The tunnel discharge point is located on the east bank of the Susquehanna River, approximately 350 feet north of the Fort Jenkins Bridge in the City of Pittston, Pennsylvania. A Site location map is provided in Figure 1.

The Butler Tunnel ("Tunnel") was constructed prior to the 1930s as a drainage tunnel for underground coal mines via a series of interconnecting drainage ditches. Flow from the Tunnel discharges directly into the Susquehanna River. It was designed to drain only that portion of the Butler Mine workings which were situated above an elevation of 595 feet above sea level. However, mining occurred in numerous seams to elevations as low as 300 and 400 feet above sea level. The Tunnel drains an approximate five-square mile area of underground mine caverns and waterways. The Tunnel still continues to drain the mine workings. It routinely discharges water containing contaminants of acid mine drainage composed of sulfate, iron, and magnesium into the Susquehanna River. During mining operations, boreholes were drilled into the mines to serve as air vents for the mines. Many individuals and companies used the bore holes to dispose of various wastes, including, residential and commercial wastes containing hazardous substances and waste oil. One such borehole was in Pittston at a gas station and auto repair shop called the Hi-Way Auto Service Station ("HWAS"), located over two miles from the Tunnel discharge point. This borehole is known as the HWAS borehole. The waste oil accumulated in the underground mine workings. It is believed that any sudden influx of substantial amounts of water (such as heavy rain) will cause the accumulated substances to be flushed out and discharged from the Tunnel.

The migration of contaminants from this Site begins with a rainfall event over the surface area of the entire mine workings including Pittston, Dupont and neighboring communities. The water from the rainfall enters the mine by moving through open boreholes and from the natural seepage of rainfall through the earth. As the water fills the underground mine workings, the water elevation rises within the mines with the oil waste floating on the surface of the water. The flushout occurs when the oil spills into the interconnecting underground drainage

ditches and then to the Butler Tunnel's discharge location along the banks of the Susquehanna River. Water in the mine workings is not used as a drinking water source for the area.

There are no known endangered species or critical habitats within the immediate vicinity of the Site.

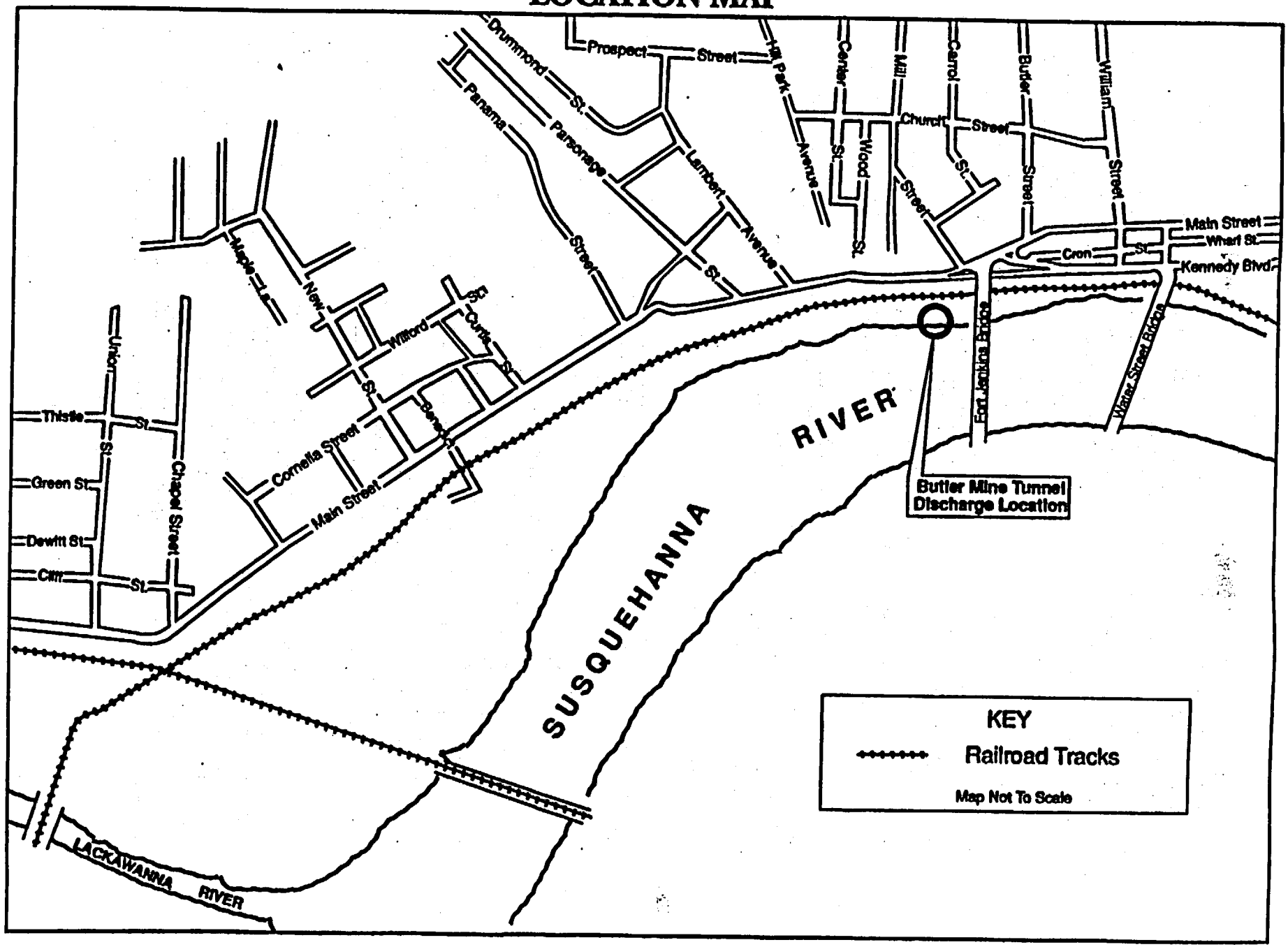
II. SITE HISTORY

In late 1977, an oil recycling and reclamation company contracted with the owner of the Highway Auto Service Station for the disposal of oil waste into the HWAS borehole on the service station property. It is estimated that several million gallons of waste were disposed of into this borehole. In July 1979, this disposal was discontinued because of a Pennsylvania State Police investigation.

At the end of July 1979, Pennsylvania authorities were notified of a strong odor emanating from the Butler Tunnel outfall on the banks of the Susquehanna. Upon arriving at the scene, authorities discovered a 35-mile long oil slick on the Susquehanna River originating at the Butler Tunnel outfall. Both the U.S. Environmental Protection Agency ("EPA") and the Pennsylvania Department of Environmental Resources (now known as the Pennsylvania Department of Environmental Protection or "PADEP"), responded and performed an emergency removal under the authority of §311 of the Clean Water Act ("CWA"). Section 311 of the CWA authorizes the cleanup of any oil discharge into a navigable water. After further investigation by EPA, PADEP and other authorities, the source of the substances was traced to the borehole at the Highway Auto Service Station. Testing of the wastes found in the borehole matched the waste in the outfall. To provide conclusive proof, a dye was placed in the HWAS borehole. The same dye was subsequently observed in the outfall discharge.

After this spill was cleaned up, EPA installed an emergency monitoring device at the outfall of the Butler Tunnel. The Butler Emergency Response Program ("BERP") was designed to monitor the continuing discharge of water from the Tunnel and trigger an alarm if hazardous substances were discharged. PADEP was charged with the operation and maintenance of the BERP system. After several years without a toxic discharge, the system was abandoned. Following the 1979 spill, the Butler Tunnel Site was evaluated and proposed for inclusion on the National Priorities List ("NPL"). However, EPA made the determination that no remedial activities were needed and the Site was removed from the proposed list.

BUTLER MINE TUNNEL SUPERFUND SITE
LOCATION MAP



In September 1985, another sudden discharge from the Butler Tunnel occurred following heavy rains and flooding associated with Hurricane Gloria, which swept through the area. Upon arriving at the scene, PADEP found a 50-mile oil slick in the Susquehanna River emanating from the Butler outfall. EPA was notified and, with the assistance of PADEP, began cleanup activities under § 311 of the Clean Water Act. This response became an emergency removal under § 104 of CERCLA when chemical analysis confirmed the presence of Bis(2-ethylhexyl) phthalate and dichlorobenzene, which are federally regulated hazardous substances. EPA removed and disposed of 161,000 pounds of oil/chemical-soaked debris and soil from the site. After further testing and investigation, EPA determined that the 1985 discharge was linked to the illegal dumping that caused the 1979 discharge. EPA spent over $735,000.00 on the 1985 removal action. On May 20, 1986, the Butler Tunnel site was once again proposed for inclusion on the NPL and was finally listed on July 1, 1987.

After both the 1979 and 1985 discharges, hydrogeologic studies were performed by EPA. These studies concluded that a low probability of a future discharge exists under normal day to day conditions but another discharge may occur anytime a large storm hits the area.

III. ENFORCEMENT HISTORY

On December 27, 1985, EPA sent information request letters to the Potentially Responsible Parties ("PRPs") associated with the haulers that sent waste to the Butler Tunnel Site. In May of 1986 EPA sent notice letters to twenty-five parties inviting them to undertake the Remedial Investigation/Feasibility Study ("RI/FS"). Most of these parties were companies whose wastes were picked up by Russell Mahler. Seventeen of these parties agreed to perform the RI/FS pursuant to a Consent Agreement and Order dated March 30, 1987. The Butler Mine Tunnel Site Phase I Remedial Investigation Report, Phase II Remedial Investigation Report, and the Feasibility Study Report are the products of the Consent Order. The responsible parties hired Gannett Fleming, Inc. to conduct the investigations and to prepare these reports. These studies are included in the Administrative Record for this Site.

On November 24, 1989 the United Stated filed a complaint against twenty defendants, all generators of hazardous substances sent to the Site, to recover EPA's past response costs associated with the 1985 spill. A Consent Decree was filed, concurrently with the complaint, in which 17 settling defendants agreed to pay $600,00 towards EPA's past costs and the Department of Defense agreed to pay $28,500 towards past costs. The Decree was entered on January 17, 1990, over the non-settlors objections.

On June 8, 1990, two of the three non-settling defendants

(NEAPCO, Inc. and Chemical Management, Inc.) entered into a second Consent Decree with the United States, agreeing to pay $200,000 towards EPA's past costs, which the district court approved in July 25, 1990.

The United States then moved for summary judgment against Alcan, the remaining defendant, to collect the balance of the removal costs (which totalled approximately $350,000). The district court granted the United States' motion on May 8, 1991, holding that Alcan was jointly and severally liable for the removal costs because Alcan's waste contained identifiable levels of hazardous substances and was present at the site from which there was a release. Alcan filed an appeal with the United States Court of Appeals for the Third Circuit on June 5, 1991. The district court's opinion was vacated and the case was remanded for further proceedings. (See Section IV below for a discussion of the appeal.) The United States filed a summary judgment motion in the district court and on June 28, 1995, District Judge Thomas I. Vanaskie of the United States District Court for the Middle District of Pennsylvania entered a judgment in favor of the United States in the amount of $473,790.18. U.S. v. Alcan Aluminum Corporation. (CN: 3:89-cv-01657, United States District Court, Middle District of Pennsylvania, June 28, 1995).

IV. HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI/FS Report and the Proposed Plan for the Butler Mine Tunnel Site were released to the public for comment on July 19, 1994 in accordance with Sections 113(k)(2)(B), 117(a), and 121(f)(1)(G) of CERCLA, 42 U.S.C. §§ 9613(k)(2)(B), 9617(a), 9621(f)(1)(G). These documents were made available to the public in both the administrative record and in an information repository maintained at the Luzerne County Court House Emergency Management Center located on North River Street in Wilkes-Barre, Pennsylvania. The notice of availability for the documents and the public meeting was published in the Wilkes Barre Times Leader.

A public comment period on the documents was held from July 19, 1994 through September 22, 1994. In addition, a public meeting was held on September 20, 1994. At this meeting, representatives from the EPA and PADEP were present and answered questions about the Site and the remedial alternatives under consideration. A Fact Sheet containing Site related information was distributed at the Public Meeting. EPA's response to all comments on the Proposed Plan and related documents received during the comment period is included in the Responsiveness Summary in this ROD. A copy of the transcript of the public meeting has been placed in the administrative record file and information repository.

V. SCOPE AND ROLE OF REMEDY

This remedial action will address the principal threat posed by conditions at the Butler Tunnel Site, that is, the potential for another discharge of the oily hydrocarbon materials containing hazardous substances which remains in the underground mine workings. This remedial action will prepare for such a release by establishing a monitoring system to predict such release, by planning for response action, and by providing materials to expedite the response action. This is the only ROD planned for the Site.

The concentrations of some of the hazardous substances previously detected in the 1985 flushout exceed the acceptable levels for both human health and continuous aquatic life as allowed by the Pennsylvania Water Quality Standards.

VI. SUMMARY OF SITE INVESTIGATIONS AND WASTE VOLUMES

The Remedial Investigation ("RI") attempted to re-construct the operations of the oil recycling contractor and the dispatching tanker trailers carrying waste materials to the HWAS borehole. Based on reports from different refinery facilities and records, it is estimated that between 1,500,000 to 2,700,000 gallons of liquid wastes were disposed into the mine workings. The RI report further estimates the oil content of the liquid to be between 330,000 to 490,000 gallons. In reviewing the two oil discharge events from 1979 and 1985, PADEP and EPA have estimated that between 276,000 and 400,000 gallons were discharged during these events. Therefore, there still could be 50,000 to 90,000 gallons of oil contained in the mine workings.

A. Hazardous Substances

In 1985 the analysis of the oily hydrocarbon discharge from the Tunnel revealed hazardous substances which triggered CERCLA expenses to address the discharge. The hazardous substances are listed in Table 1.

The oily waste containing these hazardous substances moved through the mine workings into the Tunnel and discharged into the Susquehanna River. The Remedial Investigation also shows that some hazardous substances and oily waste still remain in the mine workings and present a potential risk if another flushout should occur. Therefore, EPA has evaluated two discharge conditions, a flushout condition and a day to day condition, to describe the nature and extent of releases that could occur at the outfall of the Tunnel. Table 2 shows the two conditions and the concentrations of the contaminants of concern that were reported during: 1) the 1985 flushout of the oily liquid wastes, and 2) the day to day concentrations as reported in the RI.

Table 1: 1985 Releases of Hazardous Substances

Benzene	Dimethyl phthalate
Bis (2-ethylhexyl)phthalate	Di-n-octyl phthalate
4-Bromophenyl phenyl ether	Ethylbenzene
Carbon Tetrachloride	Methylene chloride
Chloroform	Naphthalene
Cyanide	Phenol
Dichlorobenzene(s)	Toluene
Diethyl phthalate	Trichloroethylene
	Xylene(s)

B. Hydrogeologic Investigation

As part of the RI, a geologic study and borehole monitoring and sampling were conducted to identify the main contaminant migration pathway and the extent to which hazardous substances remain in the mine workings. The RI also assessed the affects of precipitation on the monitoring and sampling conducted in the mine workings to determine if rainfall did effect the concentration in the analytical results.

EPA hydrogeologic studies conducted in 1981 and 1987 demonstrated that contaminants injected into the HWAS borehole migrated downward through the Red Ash mine workings and into the Bottom Red Ash workings. The contaminants followed the structure contours of the Bottom Red Ash mine workings, entered an underground east-west drainage ditch and then reached the tunnel discharge location on the eastern side of the Susquehanna. During the investigation additional boreholes were drilled, some existing boreholes were reopened, and the monitoring, sampling and analytic program was conducted. One of the goals was to determine if any accumulation of contaminants was present underground.

Using 14 different boreholes, the RI detected some of the hazardous substances detected in the 1985 release in 10 of the boreholes. The highest concentrations were found in the HWAS borehole. The frequency of detection and the concentrations decreased as the borehole locations followed the main contaminant migration pathway along the Bottom Red Ash workings toward the east-west drainage ditch.

The second part of the hydrogeologic investigation attempted to correlate rainfall events with an increase in water flow into the east-west drainage ditch and ultimately to the tunnel discharge location. In general each storm produced a different

rainfall amount and occurred over a different time duration. The size of a storm is assessed by comparing return periods. A storm's return period is the average number of years with in which the storm's rainfall amount will be equalled or exceeded.

As an example, the September 1985 storm caused by Hurricane Gloria had a return period of 55 years and can be described as a "55 year storm". It is estimated that flow from the Tunnel exceeded 42 million gallons per day during that rainfall event. During the RI three storms did exceed the 1 year storm level, and these storms did increase the volume of water exiting the tunnel. Therefore, the RI concludes that measurement of storm rainfall can be used to predict the actual flow from the Tunnel.

C. Surface Water and Sediment Investigation

Surface water samples were collected at three different locations on the eastern side of the Susquehanna River. The first location was north of the tunnel discharge location. The second was located at the Bridge just south of the discharge location and the third was located at the next bridge further south. The surface water analytical results did not show detectable concentrations of the hazardous substances at any of the three locations.

Sediment samples were also collected and analyzed from the same three locations. Three of the hazardous substances were detected, but they did not exceed sediment quality criteria based on PADEP Water Quality Criteria for the protection of fresh water aquatic life. Generally volatile, semi-volatile and petroleum compounds were detected in sediments at higher levels at the bridge just south of the tunnel discharge. These detections could be attributed to the previous discharge incidents.

D. Biota Investigation

A macro invertebrate investigation was conducted as part of the RI and samples were collected near the three locations where surface water and sediment samples were taken. Generally, the macro invertebrate community improves as the distance from the Lackawanna River and the Susquehanna River confluence increases. Total number of specimens was smallest at a location north of the Tunnel and greatest at the second bridge south of the tunnel. There were no changes directly attributable to the Butler Tunnel discharges on a day to day basis. The Lackawanna River quality is the factor that probably explains the results of the river biota study.

Table 2: Contaminant Concentration In Flushout Events

Chemical	1985 Flushout Maximum Report Tunnel Concentration (µg/l)	Day to Day Maximum Tunnel Concentration (µg/l)
Benzene	26.8	ND
Carbon Tetrachloride	13.6	ND
Chloroform	7.0	ND
Ethylbenzene	ND	9.0
Methylene Chloride	795.0	ND
Toluene	11.0	4.0
Trichloroethene	ND	ND
Total Xylenes	ND	59.0
bis (2ethylhexyl) phthalate	36.0	8.0
4-Bromophenyl phenyl ether	166.0	ND
1,2-Dichlorobenzene	ND	ND
1,3-Dichlorobenzene	26.5	ND
1,4-Dichlorobenzene	ND	ND
Diethyl phthalate	5.0	ND
Dimethyl phthalate	5.0	ND
Di-n-octyl phthalate	5.0	ND
Naphthalene	ND	ND
Phenol	ND	ND
Cyanide	1.0	ND
Oil	NA	100.0

ND = Non Detect NA = Not Analyzed

VII. SUMMARY OF SITE RISKS

The risk evaluation conducted under CERCLA to describe the risk posed by the Butler Mine Tunnel Site was based on the presence of hazardous substances that were found in the oily hydrocarbon discharge that occurred in 1985 and the same hazardous substances detected in the water discharged by the tunnel on a day to day basis.

Table 2 indicates two conditions and respective concentrations of the contaminants of concern that were reported during 1) the 1985 flushout of the oily liquid wastes and 2) the day to day concentrations as reported in the Remedial Investigation.

As part of the RI/FS, an analysis was conducted to estimate human health and environmental problems that could result at the Site. This analysis is referred to as a Risk Assessment ("RA"). The RA is used to evaluate the need for remedial action. It also helps in determining the levels to which site related contaminants have to be treated to ensure the protection of human health and the environment. The RA for the Site characterizes the current and potential threats to human health and the environment based on reasonable maximum exposures ("RMEs") to contaminants if no remedial action were taken. The RA is used to evaluate the need for remedial action. It also helps in determining the levels to which site related contaminants have to be treated to ensure the protection of human health and the environment. The RA examined both carcinogenic and non-carcinogenic risk at the Site for several exposure pathways that are the possible ways that people or aquatic life could come into contact with the hazardous substances. The human health risk assessment is based on the assumption that exposure to Site related contaminants can occur only if a complete exposure pathway exists.

The exposure pathways are based on recreational use when people could be in the river at the discharge location and include the following possibilities:

1. Accidental swallowing of surface water;
2. Accidental swallowing of river sediments;
3. Accidental swallowing of the oily hydrocarbon material while in the river;
4. Breathing in volatile compounds from the oily hydrocarbon material while in the river;
5. Skin contact with surface water;
6. Skin contact with the oily hydrocarbon material;
7. Eating fish from the river.

The National Contingency Plan ("NCP") establishes acceptable levels of carcinogenic risk for Superfund sites between 1 in 10,000 and 1 in 1,000,000 additional cancer cases. Expressed as

a scientific notation this translates to an acceptable risk range between 10^{-4} and 10^{-6}. In addition to carcinogenic risk, chemical contaminants that are ingested (eaten), inhaled (breathed), or dermally absorbed (skin contact), may present a non-carcinogenic health risk to humans. This kind of risk is expressed as a Hazard Index ("HI"). An HI exceeding one (1) is considered an unacceptable risk.

Table 3 shows the risk to human health from various exposure pathways for the contaminant concentrations detected in the day-to-day conditions and for a flushout condition. The calculation indicates that the risks from the day-to-day discharge and from a flushout discharge for the hazardous substances are within an acceptable risk range. This is based on the fact that the day-to-day water has only a few of the hazardous substances and those are at low concentrations. The main factor for the calculation of the flushout exposure is that the time of the exposure would be very short before an exposed person would get out of the river.

The risk to the environment and aquatic life were evaluated a part of the RI/FS. When evaluating protection of the environment and aquatic life, the RI/FS recognizes that day-to-day Tunnel discharge does not show large amounts of the oily hydrocarbon material. However if another discharge or flushout should occur, there would be a damaging effect on both river bank vegetation and aquatic life in the river. The risk to the aquatic life is the potential for chronic toxicity which could include a decrease in number of organisms, a decrease in reproductivity and in their mobility and viability.

Table 4 shows a comparison of the chemicals of concern for the flushout scenario to PADEP's Water Quality Standards. It should be noted that several concentrations exceed the continuous aquatic life criterion and the long term human health criteria.

In addition to the ecological risks identified with the hazardous substances contained in the oily hydrocarbon material, a potential risk for human exposure resulting from a release such as the 1985 flushout is also possible.

Fuel oils are a complex mixture of aliphatic and aromatic hydrocarbons whose exposure potentials are based on the fate of the individual components in the mixture. The more volatile components such as the low molecular weight alkanes will evaporate and enter the atmosphere. The higher molecular weight aliphatic components have very low water solubility and will remain in soil or in the water where they may be adsorbed to particulate organic matter in water or soil and, in water, will settle to the sediment. At the Butler Tunnel Site, the flushout of the oily hydrocarbon material also presents a risk for public water intakes located on the Susquehanna River

TABLE 3 - SUMMARY OF INCREMENTAL BASELINE RISK ASSESSMENT RESULTS

Exposure Condition	Media	Exposure Pathway	Concentration Level	Incremental Hazard Index		Incremental Carcinogenic Risk	
				70-Kg Adult	35-Kg Child	70-K Adult	35-Kg Child
Day-to-day	Water-Phase	Accidental ingestion of surface water	Maximum Average	<0.001 <0.001	<0.001 <0.001	4.9×10^{-12} 4.1×10^{-13}	2.8×10^{-12} 2.3×10^{-13}
		Dermal contact with surface water	Maximum Average	0.007 <0.001	0.019 0.002	7.8×10^{-7} 6.8×10^{-8}	2.7×10^{-7} 2.3×10^{-8}
		Accidental ingestion of sediment	Maximum Average	<0.001 NC	<0.001 NC	4.9×10^{-10} NC	2.8×10^{-10} NC
		Ingestion of fish	Maximum Average	<0.001 <0.001	NC NC	3.4×10^{-8} 2.9×10^{-8}	NC NC
		Total (all pathways)	Maximum	0.007	0.019	8.1×10^{-7}	2.7×10^{-7}
Flushout	Water-Phase	Accidental ingestion of surface water	Flushout	<0.001	<0.001	1.7×10^{-11}	1.2×10^{-11}
		Dermal contact with surface water	Flushout	0.003	0.010	2.7×10^{-7}	1.1×10^{-7}
		Accidental ingestion of sediment	Flushout	NC	NC	NC	NC
		Ingestion of fish	Flushout	<0.001	NC	7.1×10^{-8}	NC
		Inhalation of volatile at Tunnel outlet[1]	Flushout	<0.001	<0.001	1.9×10^{-8}	2.2×10^{-8}
		Total (all pathways)	Flushout	0.003	0.010	2.8×10^{-7}	1.1×10^{-7}
	Hydrocarbon Material Phase	Accidental ingestion of a sheen[2]	Flushout	<0.001	<0.001	3.0×10^{-8}	2.0×10^{-8}
		Dermal contact with a sheen[2]	Flushout	0.005	0.015	5.7×10^{-7}	2.3×10^{-7}
		Inhalation of volatile from a sheen[3]	Flushout	<0.001	<0.001	6.8×10^{-11}	6.7×10^{-11}
		Total (all pathways)	Flushout	0.005	0.015	5.7×10^{-7}	2.3×10^{-7}
	Water and Hydrocarbon Material Phases	Total for Possible Flushout Conditions (all pathways)[4]	Flushout	0.008	0.025	8.5×10^{-7}	3.4×10^{-7}

Notes: A Hazard Index greater than 1.0 or a carcinogenic risk value above the range of 1×10^{-6} to 1×10^{-4} identifies a potential level of concern. Exposure was assumed to occur at the 15-minute travel time location downriver of the Tunnel.

NC — Not Calculated. Risk values are not calculated because concentration data or exposure variables are not available.

(1) Based on 1985 sampling results at the Tunnel outlet.

(2) Exposure concentrations consider loss of volatile compounds.

(3) Based on modeling results for volatilization and a wind speed of 10.8 mph.

(4) Sum of water-phase and sheen values for flushout conditions.

Table 4: 1985 Flushout Contaminant Concentration and Pennsylvania Water Quality Standards

Chemical	1985 Flushout Maximum Report Tunnel Concentration (µg/l)	Human Health Criteria (µg/l)	Continuous Aquatic Life Criteria (µg/l)
Benzene	26.8	1	128
Carbon Tetrachloride	13.6	.3	556
Chloroform	7.0	6	389
Ethylbenzene	ND	3000	580
Methylene Chloride	795.0	5	2368
Toluene	11.0	7000	330
Tricholorethene	ND	3	450
Total Xylenes	ND	300	211
bis (2-Ethylhexyl) phthalate	36.0	2	909
4-Bromophenyl ether	166.0	N/A	54
1,3-Dichlorobenzene	26.5	400 (total DCB)	69
Diethyl phthalate	5.0	20,000	800
Dimethyl phthalate	5.0	313,000	495
Di-n-octyl phthalate	5.0	N/A	N/A
Naphthalene	ND	10	43
Phenol	ND	300	20
Cyanide (free)	1.0	700	5

ND = Non Detect NA = Not Analyzed / Insufficient Data to Develop Criteria
(1) PA Department of Environmental Protection. PA Water Quality Standards. PA Code Title 25, Chapter 16. Water Quality Toxics Management Strategy - Statement of Policy as amended January 19, 1991.

In conclusion, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

VIII. SUMMARY OF REMEDIAL ALTERNATIVES

The Feasibility Study ("FS") contains all the remedial alternatives considered for the Butler Mine Tunnel Site. This section describes the alternatives detailed in the FS.

Table 5: Remedial Alternatives Examined

Alternative 1	**No Action**
Alternative 2	**Institutional**
Alternative 3	**Institutional/Remedial Response**
Alternative 4	**Institutional/Multi-Port Outfall**
Alternative 5	**Surface Reclamation**

A. Alternative 1 - No Action

Evaluation of a No Action Alternative is required by the NCP. This alternative does not include any remedial action. It is expected that flushouts will continue to occur in the future during periods of intense rainfalls and that this alternative would fail to protect against the flushouts. The flushouts present a potential risk to human health and the environment.

B. Alternative 2 - Institutional

In this alternative, an Administrative Center would be established in order to perform ongoing assessments of rainfall amounts and forecasts for more rainfall. The Center will be maintained for ten years after its establishment. The Center would also monitor the volume of water flowing from the Tunnel opening and monitor the water levels in the mines and the boreholes. The Center would evaluate the potential for a flushout to occur and would advise PADEP when necessary. The Administrative Center would consist of an office and storage facility. The Center would not have to be permanently staffed, but would have a designated individual who would assess the weather conditions daily and would be responsible for the

monitoring of the Tunnel discharge. The FS proposes that the Center would be operated for a period of 10 years, which is the basis for the cost estimate.

Because of the extremely short lead time available to mobilize cleanup activities, it is critical to be able to anticipate the conditions under which a flushout may occur. Therefore, long-range precipitation forecasting would be used along with continuous monitoring at the Site. Long-range weather forecasts (three to five days) may be obtained for the Pittston area on a continuing basis from a weather forecasting service. This information would alert the Center to the potential for a significant rainfall event. The Site hydrogeologic monitoring system would consist of a continuously recording precipitation gauge linked by computer and telephone to the Center. It would be programmed to alert the Center when a predetermined rainfall rate or precipitation volume is recorded. The precipitation gauge would be located within the surface boundary of the Butler Mine. It would collect and record precipitation in the area overlying the main contaminant migration pathway.

The Center would also conduct hydraulic monitoring of Tunnel flow. The Tunnel flow monitoring system would consist of a continuously recording flow metering system linked by modem to the Center. The monitoring system would be designed to operate over a predetermined range of possible river and Tunnel flow conditions, and would be programmed to alert the Center at a predetermined flow rate.

Based on monitoring data, the Center would use a hydraulic model to estimate Tunnel flow rates from forecasted and ongoing precipitation events. If projected peak flow rates exceed a predetermined critical level, the Center would evaluate this projection, along with other available information and data to determine if a potential flushout alert should be put in place. This would trigger Tunnel discharge chemical monitoring, borehole water level monitoring, and water quality sampling. The Institutional Alternative's preliminary cost estimates are listed in Table 6.

Table 6: ALTERNATIVE 2 COST SUMMARY:

ALTERNATIVE 2 COSTS*	
Capital Costs	$ 450,000
Annual Operation & Maintenance (O&M) Costs	$ 150,000
Present-Worth Cost	$ 1,300,000
Total Project	$ 1,750,000

* All Costs are Estimated

C. Alternative 3 - Institutional/Remedial Response

The Institutional/Remedial Response alternative combines the institutional response actions described in Alternative 2 with a remedial response effort. If a flushout were to occur, the discharge of hydrocarbon materials would be a concern. This alternative, therefore, supplements Alternative 2 by including design and implementation of two future response actions to clean up future discharges. The flushout remediation costs included in this alternative would be sufficient to pay for containment of hydrocarbon materials on the river and collection of materials that may accumulate along the shoreline downstream of the Tunnel outlet.

If a flushout were to occur, the Wilkes Barre Regional office of PADEP would initiate the containment and cleanup of the oil spill on the river. If the PADEP emergency response crew requires assistance it would notify EPA for additional emergency response personnel. The cleanup efforts would include the use of containment and absorbent booms. The containment boom is a floatable, fence-like barrier and the absorbent booms are used within the containment boom to soak up the floating oily material.

In preparation for a flushout, land-based, permanent anchors would be constructed upstream and downstream of the discharge location by the Center. This would make it easier to deploy and secure the booms. In the event high river currents or winds cause the containment boom to close on itself, the anchors would be employed to attempt to reduce drift.

Booms, skimmers, clean-up materials and support equipment, including a boat, would be purchased by the Center. In addition, a response preparedness plan would be developed for storage and upkeep of the booms and equipment. The plan would cover response and deployment procedures; access to utilities; practice

deployment exercises; and the handling, transportation and disposal of hydrocarbon material removed from within the boom system and from along the shoreline. In this alternative, the anchors would be constructed as part of the remedy. The booms would be pre-purchased and stored near the site. These response measures will help to expedite the PADEP and EPA containment and cleanup efforts. As noted above the flushout remediation costs are also included in this alternative.

This alternative includes two other tasks as part of the capital costs. The six exploratory boreholes outside the main contaminant migration pathways would be permanently closed. The Center would take on additional responsibilities to implement a public information program about the risks of improper disposal of household hazardous wastes. This program would attempt to inform citizens in the area regarding the potential harmful environmental effects of improper waste disposal. Since many boreholes of various sizes are located throughout the areas surrounding the Site, it is possible that some household wastes, such as used motor oil, could be disposed into the mine pool. Additional contaminants could therefore continue to reach the Susquehanna River. This program would be directed toward residents in the entire Wilkes-Barre, Scranton area.

The Institutional/Remedial Response cost estimates include costs for Alternative 2 and the costs for construction of the anchors, purchase of boom materials and a fund for flushout remediation.

Table 7: ALTERNATIVE 3 COST SUMMARY:

ALTERNATIVE 3 COSTS*	
Capital Costs	$ 800,000
Annual Operation & Maintenance (O&M) Costs	$ 170,000
Present-Worth Cost	$ 1,500,000
Flushout Remediation	$ 1,400,000
Total Project	$ 3,700,000

* All Costs are Estimated

D. Alternative 4 - Institutional/Multi-Port Outfall

This alternative combines the institutional response actions of Alternative 2 with a multi-port outfall technology. A large pipe would be constructed to take water from the Tunnel discharge location to the bottom of the river. The outfall pipe embedded

in the river would disperse Tunnel flow via ports to achieve immediate mixing with up to 50 percent of the river flow. The multi-port outfall system would be comprised of a transition chamber and a 300 foot long outfall pipe with ports embedded in the river. The multi-port outfall would not reduce the mass or concentration of contaminants in the Tunnel discharge. It would reduce the concentrations of water-phase constituents in the river by diluting them with the river flow. Operation and maintenance would be required for the transition chamber, outfall pipe, and the ports. As with Alternative 2, PADEP would be advised if the potential for a flushout exists, and, if necessary, would issue river-use advisories and implement other response actions.

The Institutional/Multi-Port Outfall alternative cost estimates include costs for Alternative 2 in addition to the costs of constructing and installing the outfall pipe. The costs for Alternative 4 are listed below:

Table 8: Alternative 4 Cost Summary

ALTERNATIVE 4 COSTS*	
Capital Costs	$ 1,850,000
Annual Operation & Maintenance (O&M) Costs	$ 160,000
Present-Worth Cost	$ 1,500,000
Flushout Remediation	$ 1,400,000
Total Project	$ 3,250,000

* All Costs are Estimated

E. Alternative 5 - Surface Reclamation

This alternative is intended to stop the rainfall water from entering the mine pool beneath the surface of the entire Butler Mine Tunnel workings. The surface area would consist of 10 to 15 acres in the Pittston Area. Surface areas would be regraded to reduce the volume of rainfall that enters the migration pathway, thereby reducing the probability of a flushout.

Since the area is currently developed by residents and businesses, the amount of regrading and reclamation needed for this alternative is limited. The remaining undeveloped area is insufficient to accommodate for the necessary regrading project. It is estimated that only a 45 to 50 percent reduction of the

volume of water entering the mine pool in the migration pathway can be achieved. This alternative does not include the institutional response actions described in Alternative 2 and does not include the cost of obtaining access to the land.

Table 9: Alternative 5: Cost Summary

ALTERNATIVE 5 COSTS*	
Capital Costs	$ 2,250,000
Annual Operation & Maintenance (O&M) Costs	$ 25,000
Present-Worth Cost	$ 2,000,000
Total Project	$ 2,450,000

* All Costs are Estimated

IX. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

This section compares the various remedial alternatives. Table 10 also has a comparison of the alternatives.

EPA evaluates each remedial alternative against the nine criteria specified in the National Contingency Plan ("NCP"). The alternative selected must first satisfy the threshold criteria. Next the primary balancing criteria are used to weigh the tradeoffs or advantages and disadvantages of each of the alternatives. Finally, after public comment has been obtained the modifying criteria are considered.

Below is a summary of the nine criteria used to evaluate remedial alternatives.

Threshold Criteria:

Overall Protection of Human Health and the Environment:
Whether the remedy provides adequate protection and how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls.

Compliance with ARARs:
Whether or not a remedy will meet all applicable or relevant and appropriate requirements ("ARARs") of Federal and State environmental statutes and/or whether there are grounds for

invoking a waiver. - Whether or not the remedy complies with advisories, criteria and/or guidance that may be relevant.

Primary Balancing Criteria

Long-Term Effectiveness and Permanence:
The ability of the remedy to afford long term, effective and permanent protection to human health and the environment along with the degree of certainty that the alternative will prove successful.

Reduction of Toxicity, Mobility or Volume:
The extent to which the alternative will reduce the toxicity, mobility, or volume of the contaminants causing the site risks.

Short Term Effectiveness:
The time until protection is achieved and the short term risk or impact to the community, on-site workers and the environment that may be posed during the construction and implementation of the alternative.

Implementability:
The technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement that remedy.

Cost:
Includes estimated capital, operation and maintenance ("O&M"), and net present worth costs.

Modifying Criteria

State Acceptance:
Whether the State concurs with, opposes, or has no comment on the Selected Remedial Alternative.

Community Acceptance:
Whether the public agrees with the Selected Remedial Alternative.

A. Overall Protection of Human Health and the Environment

A primary requirement of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") is that the selected remedial action be protective of human health, welfare and the environment. A remedy is protective if it eliminates, reduces, or controls current and potential risks posed through each exposure pathway to acceptable levels through treatment, engineering controls, or institutional controls.

Alternative 1, No Action, has no provisions to monitor the flow from the tunnel or even try to predict if a discharge would

occur. Any response would be initiated by local residents who would initially notify proper authorities. The No Action alternative does not include treatment or controls, provides no reduction in risk, provides no monitoring for the prediction of a flushout which could take hours to detect when the hazardous substances may enter the Susquehanna River. The No Action Alternative is not protective of human health and the environment, and it will not be considered further.

Alternative 2, Institutional, has provisions to monitor the rainfall in the Pittston Area, monitor the volume of the flow at the discharge location and in the mine workings. This alternative provides for the prediction of conditions that would indicate a possible mine discharge, and the notification of response personnel.

Alternative 3, Institutional/Remedial Response combines the protectiveness of Alternative 2 with the ability to provide the response personnel with the equipment and access needed to contain a discharge as quickly as possible. This alternative provides the greatest protection because it minimizes the impact by planning for a PADEP/EPA response action and it decreases the time it would take to initiate the containment of a flushout.

Alternative 4, Institutional/Multi-Port Outfall combines the monitoring involved with Alternative 2 with a mechanism to disperse the oily hydrocarbon material and dilute the concentration of hazardous substances associated with the discharge. However the dispersion of the discharge would have a negative impact on the ability of PADEP/EPA to respond and contain the flushout materials.

Alternative 5, Surface Reclamation, should decrease the number of pathways that the rainfall could use to enter the mine workings. Alternative 5 does not include the monitoring of Alternative 2 and does not provide for materials and the planned response of Alternative 3.

B. Compliance with ARARs

Each remedial action alterative evaluated in the FS or in this ROD addresses a response to a release of contaminants from the Butler Tunnel to prevent the flow of contaminants downstream in the Susquehanna River. As such, we cannot rely on this remedy to achieve the requirements of the State General Water Quality Criterion of 25 PA Code § 93.6 relating to impacts of oil on aquatic life, and thus, invoke the waiver to this ARAR based on technical infeasibility. All alternatives will have the ability to comply with Aquatic Water Criterion "AWQC" levels for toxic substances of concern at the Site. See 25 PA Code Chapter 16, Table 1 and Table 4 of this ROD.

In the event of a flushout, hydrocarbon material will be discharged to the river, however, the booms described in Alternative 3, if deployed in a timely manner, will reduce the migration of hydrocarbon material discharged from the Tunnel. Depending on the quantity of hydrocarbon material and river turbulence, the multi-port outfall described in Alternative 4 may, or may not, achieve this objective.

Alternatives 2,3,4 and 5 would comply with the pertinent location- and action-specific ARARs indicated in Section XI.B.2 and XI.B.3, respectively, of this ROD.

C. Long-Term Effectiveness and Permanence

None of the alternatives examined in the FS or this ROD remove all of the oily hydrocarbon material from the mine workings or provide a permanent solution that would prevent the flushouts. Long term effectiveness is based on the ability for PADEP/EPA to respond to any discharge events at the site.

While Alternative 2 provides for the monitoring to predict the potential for a discharge event, it does not provide for long term effectiveness to mitigate such an occurrence.

Alternative 3 attempts to provide long term effectiveness by deployment of booms during river conditions which could create a flushout. The boom system will reduce the migration of hydrocarbon material discharged from the Tunnel during a flushout and thereby provide greater protection of water quality and downstream riverbanks.

The effectiveness of Alternative 4 is largely dependent upon the quantity of hydrocarbon material discharged during a flushout and turbulence of the river.

Alternative 5 is anticipated to be approximately 50% effective over the long term at reducing the inflow of surface water into the main contaminant migration pathway, and hence reduce the probability of a flushout. To the extent that municipal storm water drainage is discharged to the abandoned mine workings, the effectiveness of this Alternative will be lessened. In conjunction with Alternative 5, an environmental monitoring program may have to be adopted to identify and eliminate source infiltration.

D. Reduction of Mobility, Toxicity or Volume

None of the alternatives evaluated in the FS or this ROD would result in a permanent reduction in the mobility, toxicity or volume of the hazardous substances or hydrocarbon material

discharged to the river. However, the continual drainage of water through the mine workings will reduce the toxicity and volume of contaminants over time.

Alternative 2 does not provide for a response action and does not reduce the mobility, toxicity or volume of the contamination discharged.

In Alternative 3, booms, if deployed in a timely manner, could reduce the downriver migration of hydrocarbon material discharged from the Tunnel during a flushout. Effectiveness, however, would be dependent on the ability to achieve timely deployment during weather and river conditions that would make deployment difficult.

If a flushout were to occur, Alternative 4, multi-port outfall, would have no effect on the quantity of constituents or hydrocarbon material discharged into the river but concentrations of the hazardous substances would be diluted by dispersion in the river.

Alternative 5, Surface Reclamation, has the potential to reduce the amount of water discharged in a flushout and the probability of a flushout, but does not result in a permanent reduction in the mobility, toxicity or volume of hazardous substances or hydrocarbon material discharged to the river.

E. Short-Term Effectiveness

Construction of the physical facilities comprising the various alternatives is not anticipated to have any permanent adverse affect on the community, workers or the environment.

Certain temporary and limited community and environmental concerns (e.g., fugitive dirt and aquatic habitat disturbance) may be realized with Alternatives 3, 4 and 5. In addition, in the case of Alternative 3, health and safety concerns for the remedial contractor's personnel, caused by the extreme weather and hazardous river conditions anticipated at the time of a flushout, would need to be addressed in the remedial contractor's health and safety plan.

The time required to plan and implement administrative and institutional controls and design and construct physical facilities is estimated to range from one and one-half to two years for Alternatives 2, 3 and 4.

Alternative 5 would require EPA to execute a large number of agreements with the various property owners who are located on estimated 10 to 15 acres needed for regrading. Depending on the difficulties encountered in negotiating agreements with property owners, this time might take up to four to five years.

Alternative 5 has the least short term effectiveness because of the disruption to the area while the regrading would be occurring. The other alternatives have basically equivalent short term effectiveness.

F. Implementability

Implementation considers the time required to design and construct each of the alternatives.

Implementation of the administrative and institutional controls, and design and construction of the physical facilities comprising the alternatives are considered feasible. Based on available information, no major technical problems are anticipated with engineering designs or construction, achieving compliance with regulatory requirements, or obtaining permits. The services and materials necessary for construction for Alternatives 3 and 4 are available.

For Alternative 3 in the event of a flushout, the ability to deploy booms in a timely manner may be difficult. As previously noted, severe weather and hazardous river conditions anticipated at the time of a flushout can be expected to cause significant concern for the safety of workers charged with the responsibility for deploying booms.

The implementability of Alternative 4 is more difficult than for Alternative 3.

A potential major hindrance to the implementation of Alternative 5 will be obtaining of rights-of-way, and land-use rights and restrictions necessary for design activities, construction of the surface reclamation projects and the protection of the projects when completed. Legal and land-use rights and restriction costs may be very high, and the attempted resolution of these matters very time-consuming. There is no assurance that agreements can be successfully negotiated at a reasonable cost. If such is the case, implementation may not be achievable without the intervention of the federal government.

G. Cost

Evaluation of cost for each alternative includes calculation of the capital costs, O&M costs, and the net present worth. Capital costs consist of direct items such as labor, materials, equipment, and services. Operation and Maintenance costs or annual costs, are the post-construction costs necessary to maintain the remedial action. O&M costs include such items as operating labor, maintenance, auxiliary materials, and energy. The present worth is based on both the capital and O&M costs, and provides the means of comparing the cost of different

alternatives.

The total project cost are estimated as follows:

Alternative 1 - $ 0
Alternative 2 - $1,750,000
Alternative 3 - $3,700,000
Alternative 4 - $3,250,000
Alternative 5 - $2,450,000

The ultimate capital cost for Alternative 5 could substantially increase due to the costs of rights-of-way and land-use rights and restrictions.

Included in the project costs above are the operating and maintenance costs. For all practical purposes, the annual operating and maintenance cost estimates for Alternatives 2, 3, and 4 are equal ($150,000 to $170,000). In addition to the annual operating and maintenance cost estimate of $170,000, Alternative 3 includes an additional $1,400,000 fund for remediation expenses in the event of a flushout.

H. State Acceptance

The Commonwealth of Pennsylvania has concurred with the selected remedy, but has stated its objection to EPA not including the Pennsylvania Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L.4, No. 1995-2, 35 P.S. §6026.101 et seq. ("Act 2") as an ARAR in this ROD.

I. Community Acceptance

The Proposed Plan for the Butler Tunnel Site were released for public comment on July 19, 1994. The Proposed Plan identified Alternative 3 (Institutional/Remedial Response) as EPA's preferred alternative. EPA reviewed all written and oral comments submitted during the public comment period. The comments from the public did not seem supportive of the Preferred Alternative identified in EPA's Proposed Plan. EPA determined that no significant changes be made to the remedy, as it was originally identified in the Proposed Plan.

After application of the Nine Criteria, and consideration of public comment, EPA's preferred alternative presented in the Proposed Plan was selected by EPA to be the selected remedy at the Site. EPA believes that the selected remedy represents the best balance of the remedial alternatives with respect to the nine criteria, and it best satisfies the statutory requirements of CERCLA, and Superfund guidance.

The selected remedy is protective of human health and the

environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The selected remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element. Implementation of the selected remedy will not involve extensive construction, excavation, or other remedial action measures that would pose any appreciable short-term risks to the public or to the workers during construction or implementation.

X. EPA'S SELECTED REMEDY: DESCRIPTION AND PERFORMANCE STANDARD(S) FOR EACH COMPONENT OF THE REMEDY

A. General Description

EPA has reviewed the various alternatives presented in the FS for the Site and has selected Alternative 3, Institutional/Remedial Response, as the selected remedy. The selected remedy calls for the establishment of an Administrative Center to: a) monitor rainfall, b) monitor flow rate at the Tunnel discharge location, c) measure water levels in monitoring boreholes, and d) collect water samples for chemical analysis so as to enable one to predict when a flushout may occur. The Administrative Center would be maintained for ten years from its establishment. The Administrative Center would be responsible for notifying PADEP when a potential for a flushout exists, as well as notifying PADEP when a flushout occurs.

The selected remedy also includes preparation for future cleanup activities by constructing access roads, placing anchors along the river's edge, and pre-purchasing containment and absorbent booms necessary for the cleanup. The selected remedy includes an additional cost of $1.4 million to pay for the implementation of the cleanup of future discharges. The estimated costs are based on two cleanup efforts comparable to the 1985 flushout event. Costs could increase if more flushout events occur, or the volume of flushout materials exceeds the previous releases.

B. Administrative Center

An Administrative Center will be established for a ten year period in order to perform ongoing assessments of rainfall amounts and forecasts for more rainfall. The Center would also monitor the volume of water flowing from the Tunnel opening and monitor the water levels in the mines and the boreholes. The Center would evaluate the potential for a flushout to occur and would advise PADEP when necessary. The Administrative Center

would consist of an office and storage facility. The Center would not have to be permanently staffed, but would have a designated individual who would assess the weather conditions daily and would be responsible for the monitoring of the Tunnel discharge. The Center would be operated for a period of 10 years, which is the basis for the cost estimate.

Because of the extremely short lead time needed to mobilize cleanup activities, it is critical to be able to anticipate the conditions under which a flushout may occur. Therefore, long-range precipitation forecasting would be used along with continuous monitoring at the Site. Long-range weather forecasts (three to five days) would be obtained for the Pittston area on a continuous basis from a weather forecasting service. This information would alert the Center to the potential for a significant rainfall event. The Site hydrogeologic monitoring system would consist of a continuously recording precipitation gauge linked by computer and telephone to the Center. It would be programmed to alert the Center when a predetermined rainfall rate or precipitation volume is recorded. The precipitation gauge would be located within the surface boundary of the Butler Mine.

Table 10 - Analysis of Remedial Alternatives

Criteria	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Overall Protection of Human Health and the Environment	No Prediction methods used DEP/EPA will provide protection	Administrative Center will try to predict and will monitor DEP/EPA will provide protection	Administrative Center will try to predict and will monitor DEP/EPA will provide protection	Administrative Center will try to predict and will monitor DEP/EPA will provide protection	No Prediction methods used DEP/EPA will provide protection
Compliance with ARARs	See Text Section XI.B.	See Text Section XI.B.	See Text Section XI.B.	See Text Section XI.B.	See Text Section XI.B
Long-Term Effectiveness and Permanence	DEP/EPA will respond as needed	DEP/EPA will respond as needed	DEP/EPA will respond as needed	DEP/EPA will respond as needed	DEP/EPA will respond as needed
Reduction of Mobility, Toxicity or Volume Through Treatment	No reduction	Monitoring will provide quicker response and reduce mobility No reduction in toxicity or volume	Monitoring will provide quicker response and reduce mobility No reduction in toxicity or volume	Monitoring will provide quicker response and reduce mobility No reduction in toxicity or volume	Reduction of water entering mine pool may reduce volume No reduction in toxicity or volume
Short-Term Effectiveness	No prediction methods used DEP/EPA will provide protection	Administrative Center will try to predict and will monitor DEP/EPA will provide protection	Booms can be deployed faster	Administrative Center will try to predict and will monitor DEP/EPA will provide protection	No prediction methods used DEP/EPA will provide protection
Implementability	Not applicable	No problems anticipated	No problems anticipated	Large quantity of discharge to be disposed within the river will make boom deployment more difficult	Surface regrading of limited areas will not ensure decrease of possibility of flush out
Cost (Estimated)	None	$1,750,000	$3,700,000	$3,250,000	$2,450,000
State Acceptance	No	No	Yes	No	No
Community Acceptance	No	No	No	No	No

It would collect and record precipitation in the area overlying the main contaminant migration pathway.

The Center would also conduct hydraulic monitoring of Tunnel discharge. The Tunnel flow monitoring system would consist of a continuously recording flow metering system linked by modem to the Center. The monitoring system would be designed to operate over a predetermined range of possible river and Tunnel flow conditions, and would be programmed to alert the Center at a predetermined flow rate.

Based on monitoring data, the Center would use a hydraulic model to estimate Tunnel flow rates from forecasted and ongoing precipitation events. If projected peak flow rates exceed a predetermined critical level, the Center would evaluate this projection, along with other available information and data to determine if a potential flushout alert should be put in place. The issuance of such a alert would trigger Tunnel discharge monitoring, borehole water level monitoring, and chemical analysis in the mines and at the discharge location. Chemical analysis for the Contaminants of Concern will be done in accordance with the appropriate methods of analysis are set forth at 40 CFR Part 141.24(f)(16)(v) (Series 524.2 for organics). The Quantitation Limits (QLs) for each method are specified in the Superfund Analytical Methods for Low Concentration Water for Organic Analysis" 8/94 -OLC02.

The administrative center will alert PADEP, EPA, the National Response Center, Department of Interior, Pennsylvania Fish and Boat Commission and Pennsylvania Game Commission when monitoring and water analysis indicate that the release may be imminent.

C. <u>Remedial Response</u>

Two types of booms, namely containment and absorbent, would be utilized, as appropriate, in the event of a flushout. The containment boom would be a floatable, fence-like barrier with a bottom draft designed to reduce river velocity within the enclosure thus helping to contain floating hydrocarbon material. Absorbent booms would be deployed within the containment boom enclosure to absorb the floating hydrocarbon material. The containment boom would be deployed by the remedial contractor once the Center issues a potential flushout alert. Absorbent booms would be deployed when Tunnel discharge chemical monitoring, or visual observation, confirmed the presence of petroleum hydrocarbon in the Tunnel discharge.

Hydrocarbon material discharged from the Tunnel to the river prior to boom deployment, or hydraulically swept out of the boom system, would adsorb to debris, vegetation and soil along the

river shoreline downstream from the Tunnel outlet. The removal of this material would also be undertaken by the remedial contractor. This material would be disposed according to the CERCLA Off-site Disposal Policy.

Land-based upstream and downstream permanent anchors would be provided to assist with the deployment and securing of the booms. Two pile cap anchors, each with an imbedded structural steel column containing eyelets, would be constructed along the river shoreline; one approximately 200 feet upstream and the second approximately 100 feet downstream of the Tunnel outlet.

The Center would purchase all the material to respond to a flushout. This material would include booms and support equipment, including a boat. In addition, a response preparedness plan would be prepared covering, among other things, storage and upkeep of the booms and equipment; response and deployment procedures; access to utilities; practice deployment exercises; and the handling, transportation and disposal of hydrocarbon material removed from within the boom system and from along the shoreline. Since weather (wind, visibility) and river (current, roughness, floating debris) conditions at the time of a possible flushout would be adverse, the plan would also set forth safety guidelines to be considered prior to dispatching workers onto the river to deploy or maintain booms. The facilities and equipment for the remedial response would be subject to EPA approval and must met EPA specifications for responding to an oil spill.

D. Engineering and Site Preparation Requirements

Engineering design activities, and the preparation of construction drawings and specifications would have to be undertaken prior to construction of physical facilities.

Two pile cap anchors, each with an imbedded structural steel column containing eyelets, would be constructed along the river shoreline; one approximately 200 feet upstream and the second approximately 100 feet downstream of the Tunnel outlet. These anchors would be used by the remedial contractor to deploy and secure the booms. In addition, it will be necessary to clear and maintain a boat launching area and access road. The access road will extend from the nearest road to the river.

In preparation for a flushout, facilities would be provided at the Site for the temporary storage of booms and support equipment, personal protective equipment, and hydrocarbon material removed from the boom system. Provisions would also be made for worker and equipment decontamination and/or off-site disposal of contaminated equipment, apparel, and decontamination residues. Since limited land area is available in the vicinity of the Tunnel outlet, the staging area for the temporary storage

of hydrocarbon material removed from the boom system would be designed to accommodate its rapid removal to an appropriate off-site disposal site.

The transport of hydrocarbon material, decontamination residues and contaminated debris removed from the water by the boom system for off-site disposal would be required in the event of a flushout. Arrangements would be made for the collection, transport and off-site disposal of the hydrocarbon material, together with contaminant-coated equipment, cleanup supplies and shoreline debris.

Material contained within the boom system during a flushout, along with contaminant-coated equipment, clean-up supplies and shoreline debris, would be disposed of off-site at an appropriate facility taking into consideration the quantity and composition of such material.

E. Community Relations

Another task of the selected remedy would be the preparation of an community information program to be presented to local municipal officials and residents. The program would, among other things, be designed to discourage the continued use of boreholes for waste disposal.

F. Borehole Closure

Six of the boreholes used during the RI at the site would be closed in accordance with the procedures described in PA Code Title 25 of the Pennsylvania, Chapter 88.

G. Five-Year Reviews

Five Year reviews shall be conducted after the remedy is implemented to assure that the remedy continues to protect human health and the environment.

H. Worker Safety

During all Site work, Occupational Safety and Health Administration ("OSHA") standards set forth at 29 C.F.R. Parts 1910, 1926 and 1904 governing worker safety during hazardous waste operations, shall be complied with.

I. Deed Restrictions

Deed restrictions shall be developed and submitted to EPA for approval. Once approved, these deed restrictions shall be placed in the deed to the Site by filing said restrictions with the Recorder of Deeds of the appropriate County.

The deed restrictions shall prohibit the excavation or disturbance of the Site, for as long as contamination remains above performance standards.

The deed restrictions shall be valid and binding in the Township and the Commonwealth in which the Site is located. The continuing need for these restrictions shall be re-evaluated during the Five-year Site reviews which are conducted under CERCLA Section 121(c), 42 U.S.C. Section 9621(c).

J. Operation and Maintenance

An operational and maintenance (O&M) plan for the selected remedy shall be required. The performance of the Administrative Center's functions shall be carefully monitored on a regular basis and the system may be modified, as warranted by the performance data collected during operation. Samples of river water near the tunnel discharge point shall be collected periodically to ensure that contaminants contained in the day-to-day tunnel discharge are not significantly increasing.

XI. STATUTORY DETERMINATIONS

CERCLA directs EPA to select remedial actions that are protective of human health and the environment. Section 121 of CERCLA also requires that the selected remedial action comply with ARARs, be cost effective, and utilize permanent treatment technologies to the maximum extent practicable. The following sections discuss how the selected remedy for the Butler Mine Tunnel Site meets these statutory requirements.

A. Protection of Human Health and Environment

The selected remedy is protective of human health and the environment. The Administrative Center will provide continuous oversight of the potential for any release of hazardous substances from the tunnel. By monitoring the rainfall, the volume of water exiting the tunnel and monitoring the water level as well as the potential for oil flow in the mine workings, the Center will be able to predict if a release is likely to occur. In the event of a likely release, the selected remedy provides the materials for collection of hazardous substances discharges. Booms and absorbent materials will be stored at the site for immediate access for agency response. The selected remedy protects human health and the environment from contaminated tunnel discharge while providing an acceptable level of risk

No distinct pool or pocket of the contaminated oil wastes was found that could be pumped out and removed from the Tunnel.

The oil that is present is adhering to the rocks and gravel located in the collapsed mine workings beneath the ground surface.

Because this remedy will result in hazardous substances remaining on site, and the potential exists for the substances to be present above health-based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

B. Compliance With And Attainment of Applicable or Relevant and Appropriate Requirements ("ARARs")

Section 121(d)(2)(A)(i)and (ii)of CERCLA requires that remedial actions shall meet all federal and state environmental requirements that are applicable or relevant and appropriate.

ARARs fall into three categories, depending on the manner by which they are applied to a site. The characterization of an ARAR may not be unique, as some ARARs are combinations of the following three categories:

Contaminant-Specific: Health- or risk-based numerical values or methodologies that establish clean-up levels or discharge limits for particular contaminants. Examples of contaminant-specific ARARs include Safe Drinking Water Act Maximum Contaminant Levels and the Clean Water Act ("CWA") Water Quality Criteria ("AWQC"). Contaminant-specific ARARs would be utilized in assessing the concentrations of hazardous substances in any discharge to the Susquehanna River.

Location-Specific: Restrictions based on the concentration of hazardous substances or the conduct of activities at specific locations. These may limit or preclude certain remedial actions or may apply to portions of a site. Examples of location-specific ARARs include Resource Conservation and Recovery Act ("RCRA") location and floodplain management requirements. To the extent remedial alternatives include construction within or along the shoreline of waterways, the requirements of location-specific ARARs must be met.

Action-Specific: Technology or activity-based controls or restrictions on activities related to the management of hazardous waste. To the extent remedial alternatives include the handling and disposal of solid wastes (including hazardous and residual wastes), or storm water-related construction activities, the requirements of action-specific ARARs must be met.

1. Contaminant-Specific ARARs:

a. Water Quality Criteria. Title 25 Chapter 93 of the

Pennsylvania Code sets forth water quality standards. These standards are based upon water uses that are to be protected. The AWQC are considered by the state in its regulation of discharges. Relative to toxic substances, Chapter 93 references Chapter 16 under Title 25 of the Pennsylvania Code. Section 16.51 provides in-stream water concentrations for toxic substances that are to be used in the development of effluent limits. State AWQC would be applicable to any remedial alternative that affects surface water quality. State AWQC for hazardous substances of concern at the Site are presented in Table 4 of this ROD. To the extent the state has not established numerical AWQC, federal nonenforceable water quality guidelines established by EPA under the provisions of Section 304 of the CWA may be relevant and appropriate. Please see page 21 of this ROD for a discussion of a waiver for reasons of technical impracticability for impacts of oil on aquatic life 25 PA Code § 93.6.

b. Wastewater Treatment Regulations. Under Title 25 of the Pennsylvania Code, Chapter 95 lists general requirements for wastewater treatment. For discharges to waters affected by abandoned mine drainage, Section 95.5 states that industrial waste shall achieve as treatment, Best Conventional Pollutant Control Technology or Best Available Technology Economically Achievable, as appropriate, to prevent pollution in downstream waters.

2. Location-Specific ARARs

a. Dredging and Filling. Regulations implementing Section 404 of the Clean Water Act, 33 U.S.C. § 1344, codified at 40 CFR Part 230, set forth requirements related to the discharge of dredged or fill materials into waters of the United States, including wetlands. To the extent remedial action includes construction of land based anchors within or along the shoreline of waterways, the requirements of 40 CFR Part 230 may be applicable.

b. Dam Safety Waterway Management. Title 25 Chapter 105 of the Pennsylvania Code governs the construction and maintenance of dams, encroachments, and water obstructions located in, along, across or projecting into regulated waters, including wetlands. To the extent remedial action includes construction within or along the shoreline of regulated waterways, the requirements of Chapter 105 may be applicable.

c. Flood Plain Management. 25 PA Code Chapter 106 sets forth permitting requirements relating to certain obstructions located in floodplains. To the extent that the remedial action involves "obstruction" in a floodplain as defined in Chapter 106, the substantive permit requirements of that Chapter may be applicable.

d. Fish and Wildlife Conservation. The Fish and Wildlife Coordination Act, 16 U.S.C. 661-666c, addresses the conservation and enhancement of fish and wildlife resources. The Act requires consultation with the Fish and Wildlife Service when water-resource or land-use development or improvement projects are planned. The provisions of the Act are applicable since the remedial action includes construction along the shores of waterways, modification to stream flows, or land reclamation.

e. Endangered Species Protection. The Endangered Species Act, 16 U.S.C.§§ 1536(a)(2)and 1537 a.(a), require the Fish and Wildlife Service to determine if a water-resource or land-use plan may adversely affect an endangered specie(s). To the extent that remedial activities include construction along the shores of waterways or land reclamation, such activities would have to be planned and implemented in accordance with the provisions of this Act.

f. Abandoned Borehole Closure. Title 25 Chapter 88 of the Pennsylvania Code requires that exploration holes, other drill or boreholes, wells or other exposed openings be sealed, backfilled, or otherwise managed. The provisions of Chapter 88 would have to be considered with the implementation of the selected remedy.

g. Pennsylvania Storm Water Management Act of 1978 ("Act 167"). Section 13 of this Act requires that any person engaged in the alteration/development of land which may affect storm water runoff characteristics, implement control measures consistent with the provisions of applicable existing county storm water management plans. Compliance with an existing county storm water management plan will have to be considered should remedial activities alter the land in such a way as to affect storm water runoff.

3. **Action-Specific ARARs**

The PADEP has identified the Pennsylvania Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L.4, No. 1995-2, 35 P.S. §6026.101 et seq. ("Act II") as an ARAR for this remedy. EPA has determined that Act II does not, on the facts and circumstances of this remedy, impose any requirements more stringent than the federal standard.

a. Generation and Storage of Hazardous Materials. If hazardous wastes are generated during remedial activities, requirements relating to the generation of hazardous waste set forth in Title 25 Pennsylvania Code, Chapters 260-270 and/or 40 CFR Parts 260 and 270, as appropriate, must be met. If hazardous waste from equipment decontamination or debris, etc., are stored on-site pending off-site disposal, all applicable storage requirements in Title 25 Pennsylvania Code Chapters 260-270

and/or 40 CFR Part 262.34 or 264 and/or 268 must be met.

b. Municipal Waste Management. Title 25 of the Pennsylvania Code, Chapters 271 to 285, regulate the management of municipal waste. If remedial activities generate wastes, these requirements will be applicable to on-site activities.

c. Special Water Pollution Regulations. Title 25 Chapter 101 of the Pennsylvania Code requires PADEP notification of an accident or incident involving any toxic substance that would endanger downstream water users, or result in a danger of pollution or damage to property. If remedial response activities are necessary, the requirements of Chapter 101 would be applicable.

d. National Pollutant Discharge Elimination System ("NPDES"). Title 25, Chapter 92 of the Pennsylvania Code sets forth discharge criteria that include effluent limitations, standards of performance, toxic effluent standards and prohibitions for pollutants discharged to waters of the state. To the extent a remedial response to a flushout creates a point source discharge of pollutants, NPDES discharge limits are applicable, however because of the potential volume of tunnel flushout, compliance with an effluent limitations established by the NPDES requirement is technically impracticable from an engineering perspective. EPA is waiving this ARAR in accordance with CERCLA § 121(d)(4)(C).

e. Oil Pollution Prevention. Procedures and methods to prevent the discharge of oil from non-transportation-related on-shore facilities into navigable waters are established under 40 CFR 112. The requirements for the development and implementation of a Spill Prevention Control and Countermeasure Plan to minimize the potential for oil discharges to navigable waters must be met for remedial response actions.

f. Residual Waste Regulations. Requirements pertaining to the generation, handling and management of residual wastes are set forth under Title 25 of the Pennsylvania Code, Chapters 287 to 299. These regulations govern residual waste processing, disposal, transportation, collection and storage. If remedial activities generate residual wastes, these requirements are applicable.

g. Fugitive Emissions Control. Title 25, Chapter 123 of the Pennsylvania Code regulates standards for contaminant emissions, including those from open burning and demolition activities. Construction activities generating fugitive air emissions would have to be conducted in accordance with the applicable provisions of this regulation.

h. Borehole Closure. Title 25 of the Pennsylvania Code, Chapter 88, describes procedures applicable to closure of the six

boreholes used during the RI at the Site.

i. Erosion Control. Title 25, Chapter 102, of the Pennsylvania Code, requires that those undertaking earth-moving activities which create accelerated erosion or a danger of accelerated erosion, implement certain soil erosion control and conservation measures. Chapter 102 sets forth the specific erosion and sedimentation measures required to minimize accelerated erosion and sedimentation. This provision will have to be considered should remedial activities either accelerate or create a danger of acceleration of soil erosion.

j. Storm Water Discharge. Storm water discharge permit requirements for construction activity that would include clearing, grading or excavation of five or more acres are set forth in 40.C.F.R. § 122.26. To the extent that such construction is undertaken, these requirements may be applicable or relevant and appropriate.

C. Cost Effectiveness

The selected remedy is cost-effective in providing overall protection in proportion to cost, and meets all other requirements of CERCLA. The NCP, at 40 C.F.R. Section 300.430(f)(ii)(D), requires that EPA evaluate cost-effectiveness by comparing all the alternatives which meet the threshold criteria - overall protection of human health and the environment and compliance with ARARs - against three additional balancing criteria: long-term effectiveness and permanence ; reduction of toxicity, mobility and volume through treatment; and short-term effectiveness. The selected remedy meets these criteria and provides for overall effectiveness in proportion to its cost. The estimated present worth cost for the selected remedy is: $3,700,000.

The cost effectiveness of the selected remedy is provided by the ongoing monitoring which has the capability for round the clock supervision of the tunnel discharge, but is less expensive by developing a program to provide predictability for when a discharge may occur and by providing materials and easy access to the tunnel discharge location. The selected remedy also includes provisions for costs associated with two additional flushouts which secures the ability for a remedial response when needed.

D. Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable

EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized at the Site while providing the best

balance among the other evaluation criteria. Of those alternatives evaluated that are protective of human health and the environment and meet ARARs, the selected remedy provides the best balance of tradeoffs in terms of long-term and short-term effectiveness and permanence, cost, implementability, reduction in toxicity, mobility, or volume through treatment, State and community acceptance, and preference for treatment as a principal element.

The selected remedy will reduce contaminant levels in surface water and reduce the risks associated with direct contact and ingestion of the flushout to the maximum extent practicable, as well as provide long-term effectiveness.

E. Preference for Treatment as a Principal Element

The selected remedy does not satisfy CERCLA's statutory preference for treatment as a principal element. The selected remedy addresses the primary threat of future ingestion and direct contact of contaminants through release potential preparedness.

XII. DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the Butler Mine Tunnel Site was released for public comment on July 19, 1994. The Proposed Plan identified Alternative 3 as the preferred alternative. EPA reviewed all written and oral comments submitted during the public comment period. It was determined that no significant changes be made to the remedy as it was originally identified in the Proposed Plan.

XIII. RESPONSIVENESS SUMMARY

OVERVIEW

On July 19, 1994, EPA published a Proposed Remedial Action Plan ("Proposed Plan") setting forth its preferred alternative for the Butler Mine Tunnel Superfund Site located in the City of Pittston, Luzerne County Pennsylvania, and announced the public comment period for such Proposed Plan. EPA held a public meeting on the Proposed Plan on September 20, 1994. At this meeting, representatives from the EPA and PADEP answered questions about the Site and the remedial alternatives under consideration. A Fact Sheet containing Site-related information was distributed at the public meeting. Those in attendance at the meeting included local area residents, State and local officials, representatives from EPA, PADEP, and the PRPs.

In addition, EPA established a site information repository at the Luzerne County Court House Emergency Management Center located on North River Street, Wilkes-Barre, Pennsylvania. The repository contains the Administrative Record for the Site, which includes the RI/FS report, the Proposed Plan, and other relevant documents. Additionally, a copy of the Administrative Record is maintained at EPA Region III's Administrative Record Reading Room, 841 Chestnut Building, Philadelphia, Pennsylvania.

EPA screened five possible remedial alternatives for cleaning up the contamination associated with the Site. During the selection process, and prior to reaching the final decision regarding the selected remedy, EPA gave consideration to nine key evaluation criteria while carefully considering State and Community acceptance of the remedy. EPA selected Alternative 3 as the selected remedy for the Site. Alternative 3 satisfies the key criteria for remedy selection and minimizes the need for long-term treatment and management.

COMMENTERS' MAJOR ISSUES AND CONCERNS AND EPA'S RESPONSES

A. Concerns and Issues Raised During the September 20, 1994 Public Meeting:

1. Public Meeting Comment #1:

   a. Summary of Senator Raphael Musto's Comments to EPA During The September 20, 1994 Public Meeting:

Senator Musto was disappointed by what he considered to be the lack of meaningful alternatives for the cleanup of the Butler Tunnel Site. Instead of completely removing the contaminated Site, the Senator noted that the contamination will remain on-site and that the Butler Mine Tunnel will continue to be a community burden, potentially dangerous to the residents' health

and our natural resources.

Senator Musto also noted that while the Proposed Plan states that there is a "low probability" of a future discharge, it also acknowledges that a flush-out can occur "any time a large storm hits the area." He further noted that, according to the Plan, the contaminants remain in the Site so there is still a potential risk and that in the case of another flush-out, "there would be a damaging effect." He further stated that, by the EPA's own admission, a problem exists and that the possibilities instill fear in the citizens of Greater Pittston.

The Senator also noted the threat to the river, stating that our rivers must be conserved for future generations, and that such natural resources are not disposal systems for any kind of waste, especially not toxic material.

b. Other Comments Made During the September 28, 1994 Public Meeting With Regard To The Risks Associated With The Proposed Alternative

The comments continued to emphasize that the possibility of a future discharge is very real; that any funds expended at the Butler Tunnel should provide for the cleanup of an existing problem, not pay for the cleaning up of a future spill; under the current alternative, we are waiting for an accident to happen; and that we should take more precautions to prevent a future discharge.

EPA Response to Comment #1:

No distinct pool or pocket of the contaminated oil wastes was found that could be pumped out and removed. The oil that is present is adhering to the rocks and gravel located in the collapsed mine workings beneath the ground surface. Therefore, excavation and removal is not technically feasible because the only way to excavate and remove the rocks and gravel in the mine workings would be to completely disrupt the current residential and commercial use of the surface property. EPA would not select a remedy which would so dramatically disrupt the lives of these property owners.

2. Public Meeting Comment #2 by Unidentified Citizen:

A member of the audience wanted to know whether EPA has a position on landowners who own land above this underground site and what are the rights of the landowners in this situation. Specifically, this commenter asked about property owners who have cooperated with EPA to allow boreholes to be drilled on their land and when EPA will close the boreholes.

EPA Response to Comment #2:

The selected remedy does not provide for excavating any individual's property to find a pool of waste oil. In terms of the existing boreholes, the remedial alternative selected here will require closure of boreholes installed in the remedial investigation if they are not needed for future monitoring. EPA would, however, have to maintain at least some borehole locations to implement the monitoring program for water level measurement and possible sampling for water in the mine workings to determine if any of the oil is rising up to the point where a discharge could occur.

The remedial action will be designed to enable property owners to have full use of their property. If a particular borehole is necessary to monitor the mine workings and it will interfere with the owner's use of the property, EPA will evaluate if it can be relocated.

3. Public Meeting Comment #3:

Congressman Kanjorski suggested that the Butler Mine Tunnel and the mine workings are widespread throughout the Wilkes Barre Region and perhaps some of the contaminants may have reached other outfall locations of acid mine drainage. This prompted some discussion of a second operable unit to sample at a location near the Wyoming Valley Sanitary Authority.

EPA Response to Comment #3:

Based on a review of the complex subsurface geology and extensive mine workings between these widely separated areas EPA feels that it is unlikely that contaminants from the HWAS borehole can travel approximately ten miles to the Sanitation Authority. However, EPA will conduct further investigation on seeps located in the areas adjacent the Wyoming Valley Sanitary Authority. The purpose will be to determine if any of the organic chemicals identified as hazardous substances for Butler Tunnel are present at the Wyoming Valley Sanitary Authority location.

B. Comments Submitted on Behalf of Respondents to the Administrative Order:

Summary of General Comments

The Respondents were concerned that portions of EPA's description of the conditions at the Site are not entirely correct and that the description of the remaining risks potentially posed by the Site are exaggerated. Additionally, they claim that EPA's explanation of the role of the companies that funded the studies has caused confusion. The PRPs also note that the waste oil that went into the Butler Tunnel was placed there by an independent

licensed oil recycling company; it was not placed there by any of the companies that signed the Administrative Order or that funded Gannett Fleming's study of the Site. Finally, the PRPs note that a number of clarifications are needed with respect to the tables accompanying EPA's Proposed Remedial Action Plan.

Detailed Comments And Responses

1. Comment on Page 2 of the Proposed Plan:

According to the Respondents:

> Paragraph 5, third and fourth lines, refer to a "flush out" as a sudden discharge of the oily hydrocarbon materials which have been disposed of "into the mine pool." The phrase "into the mine pool" reflects a number of misunderstandings. The misunderstandings carry forward into other portions of the report as well.
>
> First, the waste was not disposed of "into the mine pool" but rather into a borehole located at the site of the Hi-Way Auto Service (HWAS) facility just off Route 81, near Pittston. Second, the RI did not identify any "pool" or "mother lode" of contamination. Rather, it disclosed low levels of potential contamination in a number of abandoned mine workings, including in the rubble and debris in the abandoned Stark, Red Ash, and Bottom Red Ash mine workings, and in a number of other locations.

The Respondents suggest that the phrase "mine pool" be deleted and the phrase "mine workings" should be substituted.

EPA Response to Comment on Page 2 of the Proposed Plan:

This ROD reflects the comment and now refers to the waste oil as part of the mine workings.

2. Comment on Page 4 of Proposed Plan:

According to the Respondents, the Site Description needs to be rewritten to better conform to the evidence developed during the RI and they proposed substitute language.

EPA Response to Comment on Page 4 of the Proposed Plan :

EPA has adopted the Respondents' language in the ROD.

3. Comment on Page 5 of the Proposed Plan:

According to the Respondents:

> even though it is certainly true that there is at best a "low probability" of a future discharge, it is not "obvious" but in fact uncertain whether another discharge can occur at all. The remedial investigation shows that at least a 25-year storm and possibly more than a 50-year storm would be necessary even to set up the hydraulic potential for another flushout. In addition, sufficient oily wastes would, at the same time, have to still be present in the mines in order to create even the possibility of a significant discharge into the Susquehanna. In view of the discharges that have already occurred, the natural attenuation over time, and the absence of any located concentrations of oily wastes, the combination of the hydraulic conditions and the necessary concentrations, certainly describes a "low probability" event.

EPA Response to Comment on Page 5 of the Proposed Plan:

The ROD maintains that a discharge could occur any time a large storm hits the area and that the monitoring must be performed.

4. Comment on Page 5 of the Proposed Plan:

According to the Respondents:

> the Proposed Plan does not correctly state the sequence of events and confuses the "companies who were responsible for the illegal dumping" (i.e., the oil recycling and reclamation companies operated by Russell Mahler) with the PRPs that signed the Administrative Order and funded the RI/FS. They provided a rewritten paragraph and an attachment of a chronology of significant events.

EPA Response to Comment on Page 5 of the Proposed Plan:

Comments on the enforcement history of the Proposed Plan have been addressed in the ROD.

5. Comment on Page 6 of the Proposed Plan:

According to the Respondents:

> the paragraph referring to "a potential risk" if another flushout should occur is not supported by the risk assessment contained in the FS. They suggested revised language stating that there would be no unacceptable risks to human health associated with these constituents.

EPA Response Comment on Page 6 of the Proposed Plan:

EPA still maintains that some constituents can pose an

unacceptable risk to human health and the environment if concentrations in the discharge are equal to or higher than the concentrations measured in the 1985 flushout.

6. Comment on Page 7 of the Proposed Plan:

According to the Respondents:

> the heading of Column Two on Table 2 should be changed to "1985 Flushout Maximum Tunnel Concentration (ug/L)". The heading of Column Three should be changed to "Maximum Day to Day Tunnel Concentration (ug/L)" to reflect that these are not expected daily maximums, but instead the highest day-to-day readings obtained throughout the study.

EPA Response to Comment on Page 7 of the Proposed Plan:

Table 2 reflects that the maximum concentrations of a flushout have been identified as the 1985 flushout and that the day-to-day maximum concentrations are also reported.

7. Comment on Page 8 of the Proposed Plan:

According to the Respondents:

> the Proposed Plan incorrectly states that if another discharge or flushout should occur, there would be a damaging effect on both river bank vegetation and aquatic life in the river. They contend that any damage is not supported by the Feasibility Study or by the experience of past discharges at the site.

EPA Response to Comment on Page 8 of the Proposed Plan:

The suggested changes about the detrimental effects of any oily discharge on the river bank vegetation and the aquatic life have not been incorporated. Even though the exposure of aquatic life to any such discharge is likely to be short-term, the damage would still occur. The remedial action required by this ROD will minimize any such damage.

8. Comment on Page 8 of the Proposed Plan:

According to the Respondents:

> the language referring to Table 4 is potentially misleading. Specifically, sentence states that: "[I]t should be noted that several concentrations exceed the continuous aquatic life criterion and the human health criteria." Since these criteria are based on chronic exposures, Respondents note that the analysis in Table 4 is an extremely conservative one.

EPA Response to Comment on Page 8 of the Proposed Plan:

EPA recognizes that the statement reflects EPA's conservative position on the potential risks that could occur.

9. Comment on Page 10 of the Proposed Plan:

According to the Respondents:

> the heading of column two in Table 4 should be changed to " 1985 Flushout Reported Tunnel Concentration (ug/L)".

They also suggested that a footnote should be added to Table 4 indicating that the potential risks are overstated.

EPA Response to Comment on Page 10 of the Proposed Plan:

The suggestion for a heading to Table 4 is accepted, but the footnote was not because the text of the risk assessment discusses the transient or brief temporary exposure that could occur during a flushout and the risk calculations included some dilution by the mixing in the river.

10. Comment on Page 12 of the Proposed Plan:

According to the Respondents:

> the description of Alternative 3 which states that the PADEP office would initiate contamination and cleanup of the oil spill in the River is not necessarily correct.

EPA Response to Comment on Page 12 of the Proposed Plan:

PADEP's Wilkes Barre Region has an emergency response capability and it is fully expected that PADEP will be the first agency to respond.

11. Comment on Page 13 of the Proposed Plan:

According to the Respondents:

> the summary of costs for Alternative 3 should contain a line at the bottom showing the "Total Project Costs" as $3,700,000.

EPA Response to Comment on Page 13 of the Proposed Plan:

This has been corrected.

12. Comment on Page 14 of Proposed Plan:

According to the Respondents:

in the description of Alternative 5, the references to the costs not included in the estimate should note that land-use costs were not included in the estimate.

EPA Response to Comment on Page 14 of Proposed Plan:

The costs for land-use in Alternative 5 have been included in the text of this ROD.

13. Comment on Page 15 of the Proposed Plan:

According to the Respondents:

> the table showing the Analysis of Remedial Alternatives, contains a typographical error. The phrase "on toxicity" should be "in toxicity." They also noted another typographical error under the column for "Alterative 5."

EPA Response to Comment on Page 15 of the Proposed Plan:

Both have been corrected.

C. Comments submitted by Federal and State Agencies

1. Comments Submitted by Department of Interior:

A comment raised by the Department of Interior in their review of the ROD concerns the requirement that the Administrative Center monitor the potential for a flushout for only a period of ten years. Several questioned why the ROD would not require a thirty-year period.

EPA Response to Department of Interior Comment:

There are no regulations or guidance under CERCLA concerning the operation and maintenance period for a site of this unique nature.

The initial flushout occurred in 1979. This ROD will have been signed in 1996 and the design phase of the Superfund process will occur next. It is anticipated that the Administrative Center will be in place by 1998 and that the ten-year period will continue until 2008. This will result in thirty-three years of monitoring for this Site.

In addition, the most recent storm and rainfall event in early 1996 did not produce the flushout discharge and the necessary response that would have been provided for under this ROD. This Site will also require a five-year review for site conditions and there remains a possibility that EPA could extend the operation

of the Administrative Center, if necessary.

2. Comment raised by PADEP:

When reviewing the draft ROD, PADEP noted that, "[h]istorically, PADEP has not been successful in trying to predict the likelihood of a release. It should be noted that this type of monitoring may or may not prove useful in predicting a release."

EPA Response to PADEP Comment:

EPA agrees with PADEP, but believes that this ROD reflects a realistic approach to provide some type of predictive ability and to provide response capability for Federal and State agencies.

Pennsylvania Department of Environmental Protection
Environmental Cleanup Program
Hazardous Sites Cleanup Section
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18711-0790
(717) 826-2549

July 2, 1996

Mr. W. Michael McCade
Regional Administrator
USEPA Region III
841 Chestnut Building
Philadelphia, PA 19107

Re: Record of Decision Concurrence Letter
Butler Mine Tunnel NPL Site
City of Pittston, Luzerne County

Dear Mr. McCade:

The Record of Decision (ROD) received on May 31, 1996, for the Butler Mine Tunnel Superfund Site located in the city of Pittston, Luzerne County, has been reviewed by the Department.

The major components of the selected remedy include:

1. The establishment of an Administrative Center to a) monitor rainfall, b) monitor flow rate at the Tunnel discharge location, c) measure water levels in monitoring boreholes, and d) collect water samples for chemical analysis to attempt to predict when a discharge of hazardous substances may occur.
2. The preparation for future remedial responses by constructing access roads and anchors along the river's edge, and prepurchasing containment and absorbent booms necessary for any potential remedial response.
3. The design and implementation of two future response actions to clean up future discharges.
4. The preparation of a Community Information Program to be presented to local municipal officials and residents.
5. The closing of six (6) of the boreholes used during the Remedial Investigation.
6. Deed restrictions to prohibit excavation or disturbance of the site.

I hereby concur with the EPA's proposed remedy with the following conditions and stipulations:

A. The Department will be given the opportunity to review and comment on documents and concur with decisions related to the design and implementation of the remedial action. This would include the preparation of the Response Preparedness Plan, engineering design activities, and construction drawings and specifications.

B. EPA will ensure that the Department is provided an opportunity to fully participate in any negotiations with responsible parties.

C. The Department will reserve our right and responsibility to take independent enforcement actions pursuant to state law.

D. This concurrence with the selected remedial action is not intended to provide any assurances pursuant to SARA Section 104(c)(3).

E. The Department is taking the opportunity to assert that the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. 4, No. 1995-2, 35 P.S. § 6026.101 et seq., is an ARAR for this site.

Although the Maximum Aquatic Life Criteria values were not included in Table 4 (page 13) in the ROD, they are a component of Pennsylvania's Water Quality Standards and therefore, are ARAR's for this site.

Thank you for the opportunity to concur with this EPA Record of Decision. If you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

Joseph C. Brogan

For William McDonnell
Regional Director